Instituto de Salud Pública
Ministerio de Salud

Gobierno de Chile

DEPARTAMENTO LABORATORIO BIOMÉDICO NACIONAL Y DE REFERENCIA

Taller de Morfología Sanguínea y análisis de imágenes: con énfasis en Blasto

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Subdepartamento de Enfermedades no Transmisibles
Departamento Laboratorios Biomédicos

BLASTOS

ESTRATEGIAS PARA LA DESCRIPCIÓN MORFOLÓGICA DE LOS BLASTOS:

1.- Tamaño celular: por ejemplo: Blasto mediano

2.- Forma del núcleo: por ejemplo: núcleo plegado

3.- Tipo de cromatina: por ejemplo: cromatina laxa

4.- Tipo de citoplasma: por ejemplo granular

5.- Nucleólos. por ejemplo: tres o más nucléolos

6.- Relación núcleo/ citoplasma: por ejemplo: baja

7.- Basofilia: por ejemplo: intensa

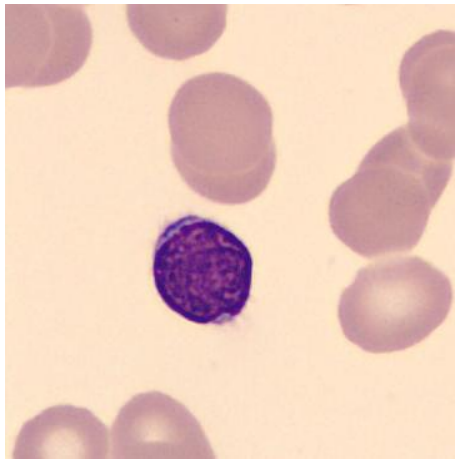
8.- Inclusiones: por ejemplo: bastones de Aüer

9.- Forma de citoplasma: orejas citoplasmáticas

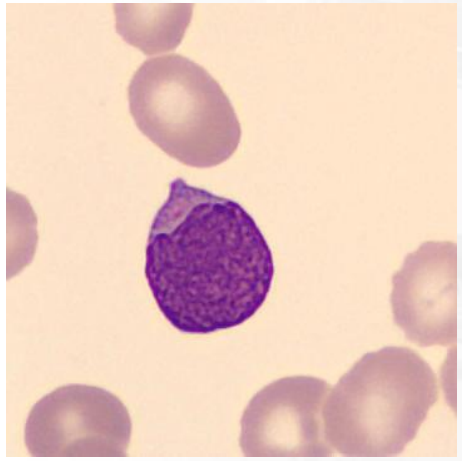
BLASTOS

1.- TAMAÑO

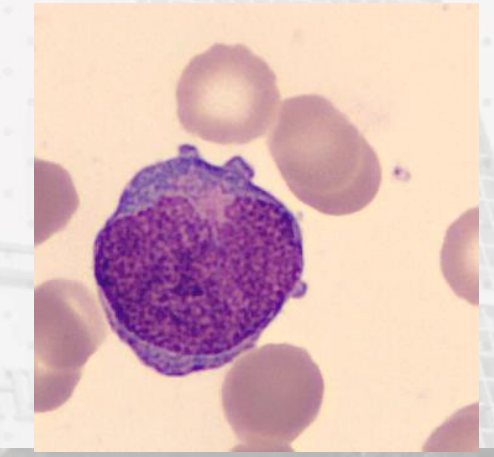
Pequeño: 9 a 11 µm (GR: 7 a 9 µm)



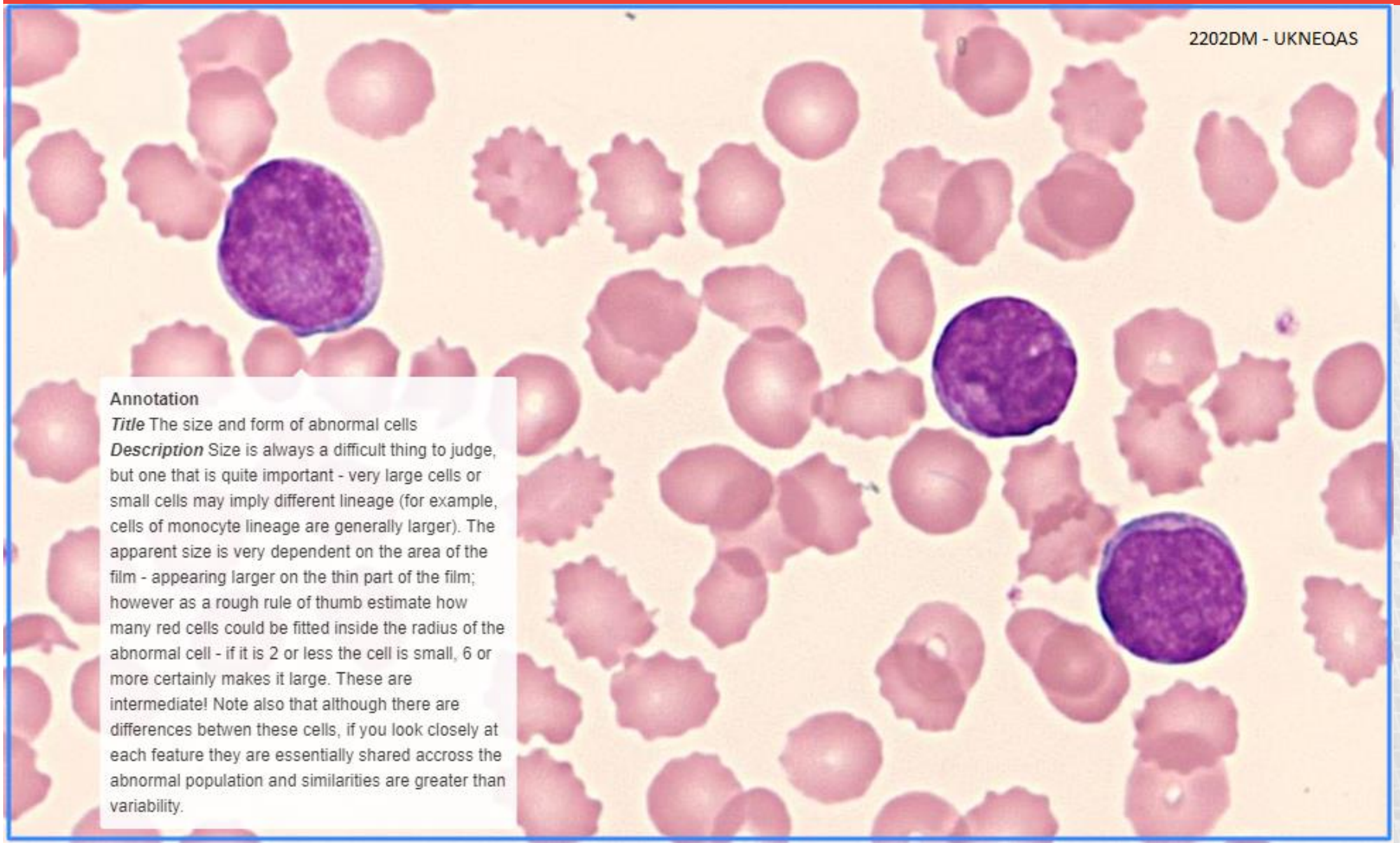
Mediano: 12 a 18 µm



Grande: 18 a 25 µm



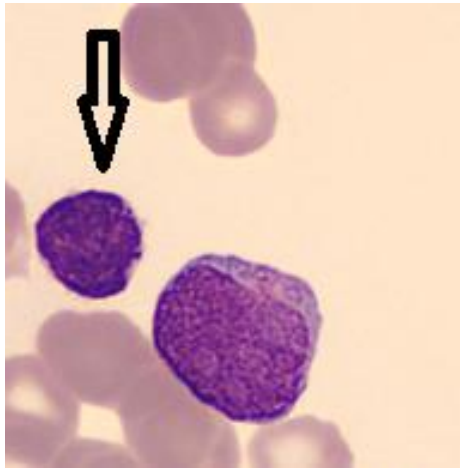
TAMAÑO


2202DM - UKNEQAS
Annotation
Title The size and form of abnormal cells
Description Size is always a difficult thing to judge, but one that is quite important - very large cells or small cells may imply different lineage (for example, cells of monocyte lineage are generally larger). The apparent size is very dependent on the area of the film - appearing larger on the thin part of the film; however as a rough rule of thumb estimate how many red cells could be fitted inside the radius of the abnormal cell - if it is 2 or less the cell is small, 6 or more certainly makes it large. These are intermediate! Note also that although there are differences betwen these cells, if you look closely at each feature they are essentially shared accross the abnormal population and similarities are greater than variability.

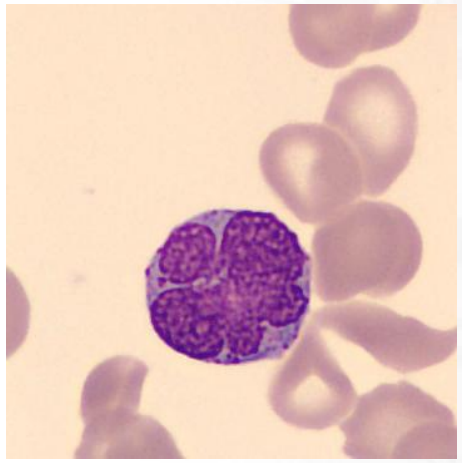
BLASTOS

2.- FORMA NUCLEAR

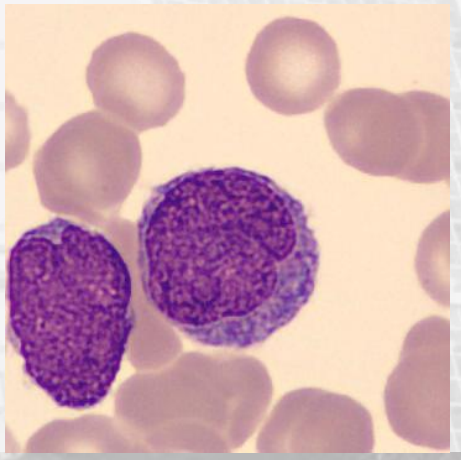
Irregular



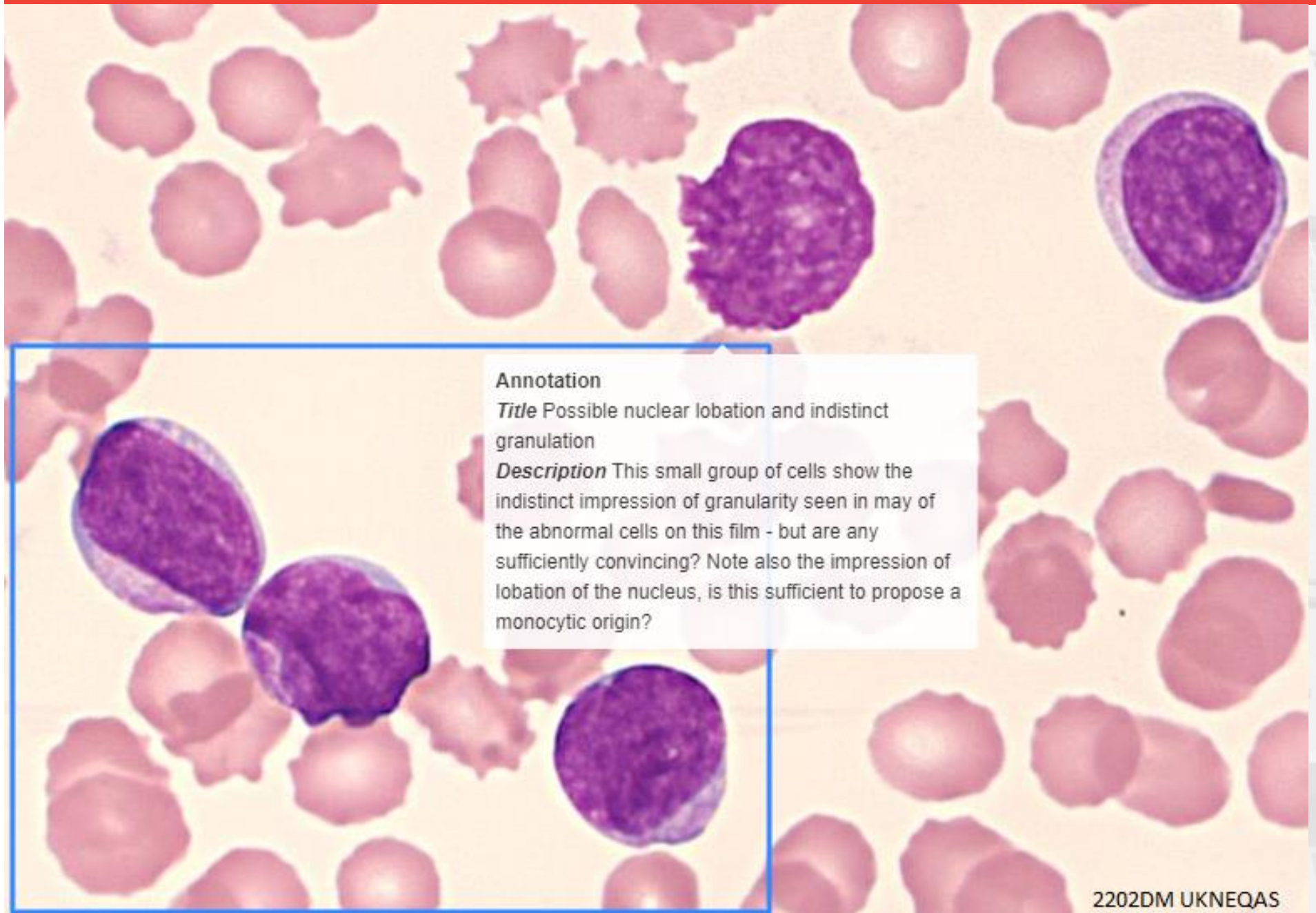
Pleomórfica



Plegado

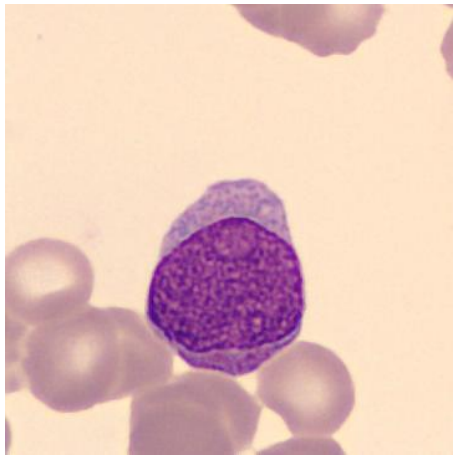


2.- FORMA NUCLEAR

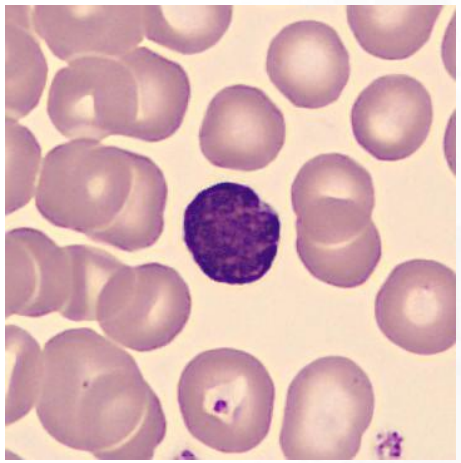

Annotation
Title Possible nuclear lobation and indistinct granulation
Description This small group of cells show the indistinct impression of granularity seen in may of the abnormal cells on this film - but are any sufficiently convincing? Note also the impression of lobation of the nucleus, is this sufficient to propose a monocytic origin?
2202DM UKNEQAS

3.- TIPO DE CROMATINA

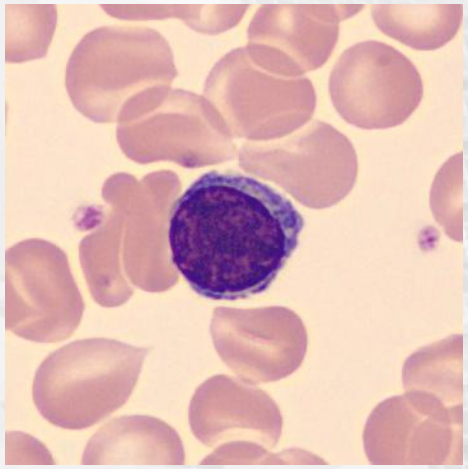
Laxa



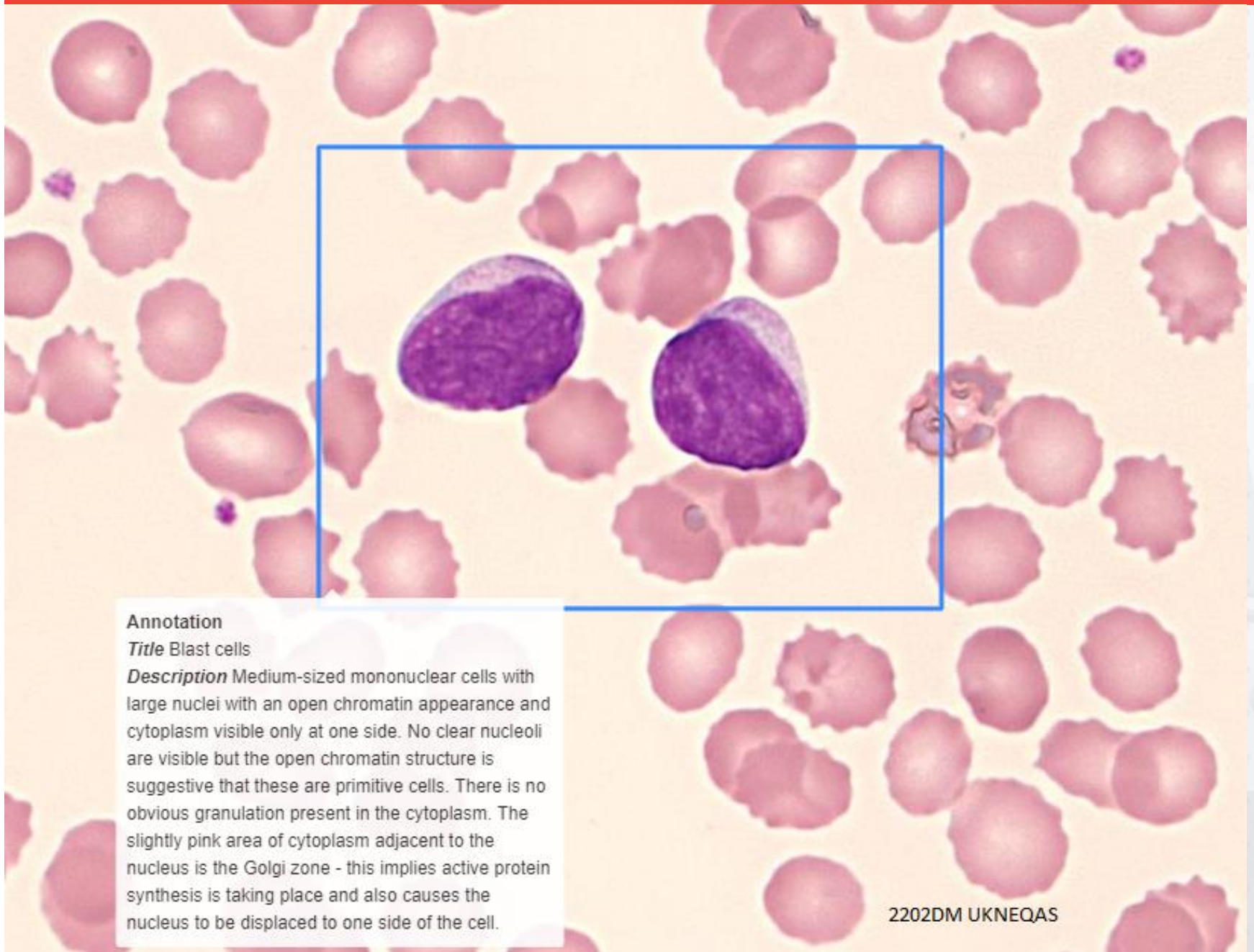
Grumosa



Condensada

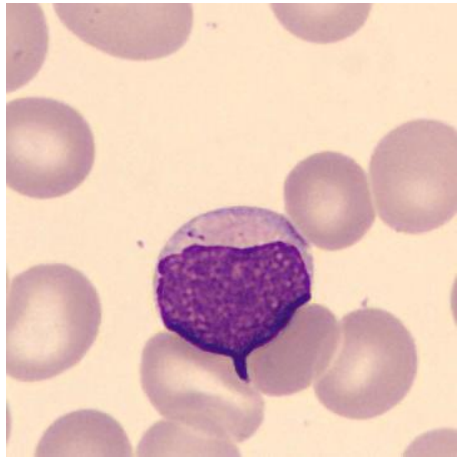


3.- TIPO DE CROMATINA

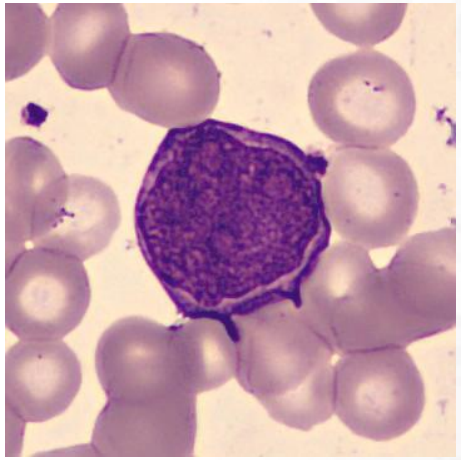

Annotation
Title Blast cells
Description Medium-sized mononuclear cells with large nuclei with an open chromatin appearance and cytoplasm visible only at one side. No clear nucleoli are visible but the open chromatin structure is suggestive that these are primitive cells. There is no obvious granulation present in the cytoplasm. The slightly pink area of cytoplasm adjacent to the nucleus is the Golgi zone - this implies active protein synthesis is taking place and also causes the nucleus to be displaced to one side of the cell.
2202DM UKNEQAS

4.- N° DE NUCLEÓLOS

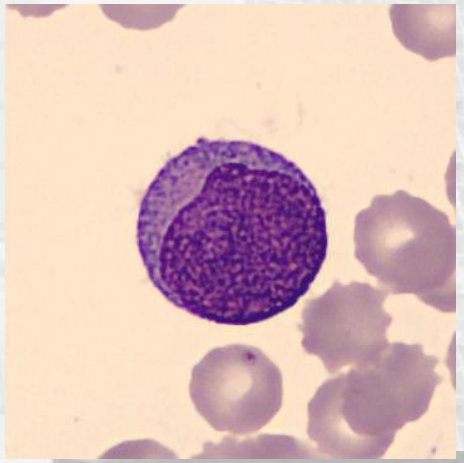
0 a 2 nucleólos



3 o + nucleólos



1 a 3 nucleólos



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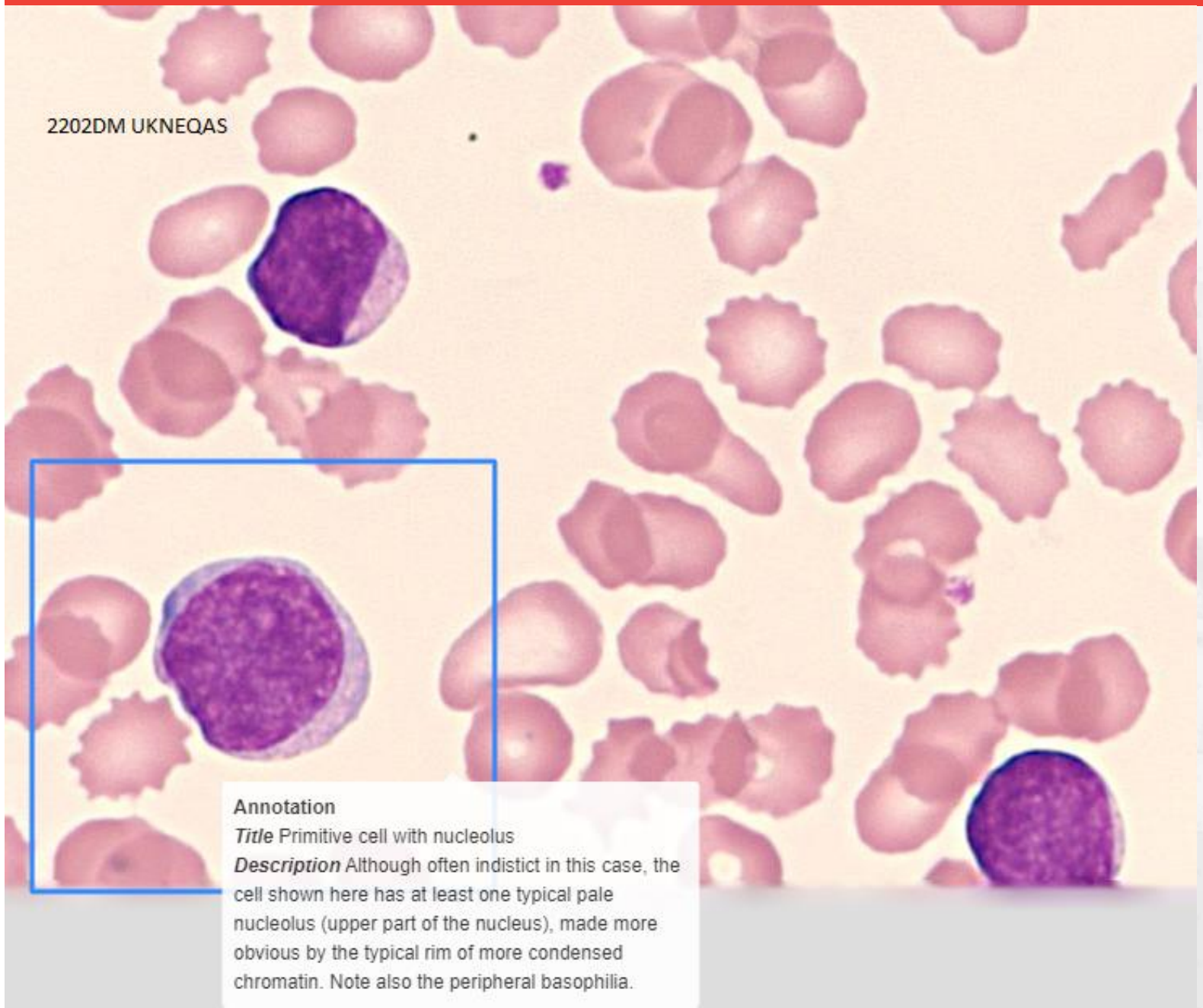
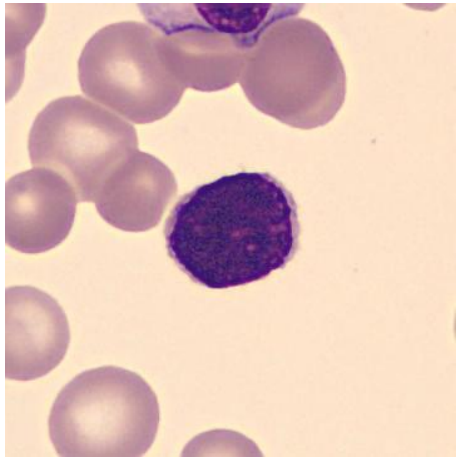
4.- N° DE NUCLEÓLOS

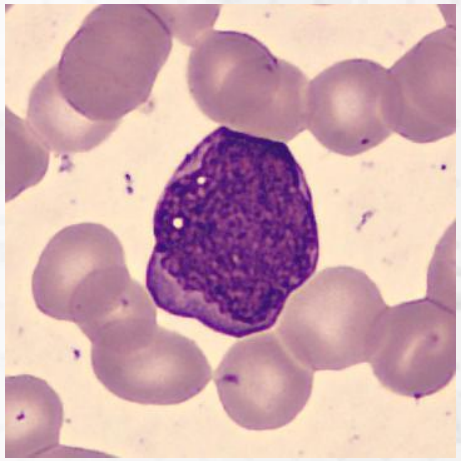

2202DM UKNEQAS
Annotation
Title Primitive cell with nucleolus
Description Although often indistict in this case, the cell shown here has at least one typical pale nucleolus (upper part of the nucleus), made more obvious by the typical rim of more condensed chromatin. Note also the peripheral basophilia.

5.- RELACIÓN N/C

Alta



Baja



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5.- RELACIÓN N/C

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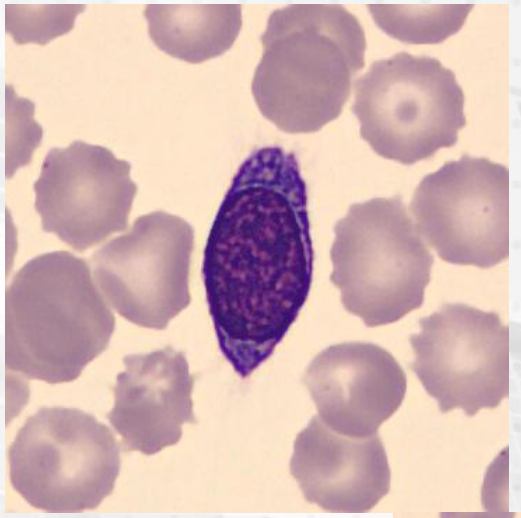
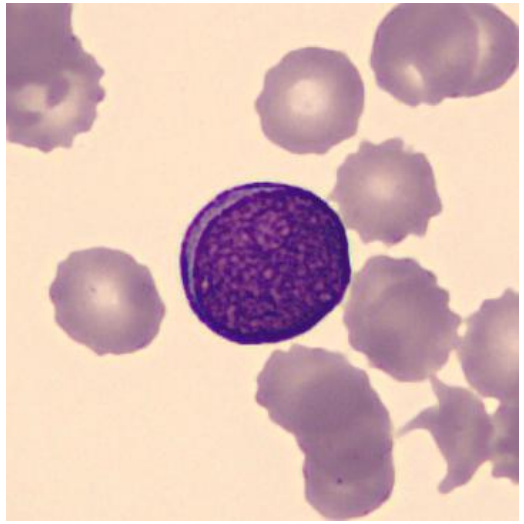
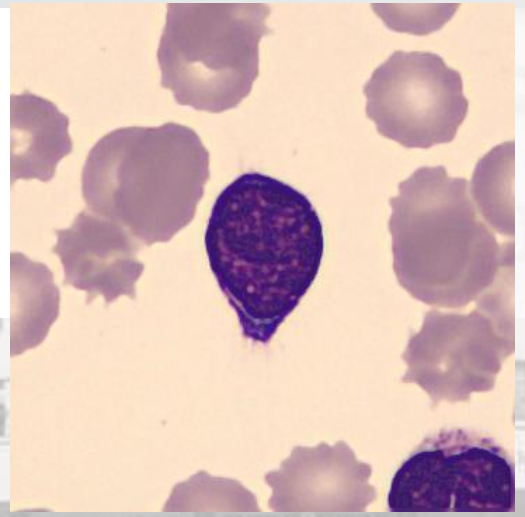
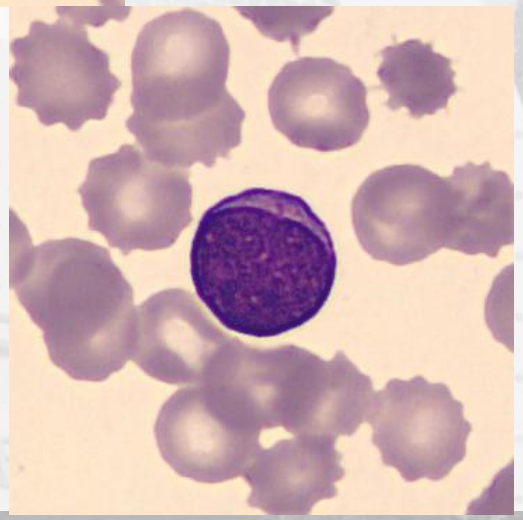
Microscopy

The peripheral blood and bone marrow blasts of AML with t(1;22)(p13.3;q13.1) are similar to those of acute megakaryoblastic leukaemia (one of the subtypes of AML, NOS). Small and large megakaryoblasts may be present and they may be admixed with more morphologically undifferentiated blast cells with a high N:C ratio, resembling lymphoblasts. The megakaryoblasts are usually









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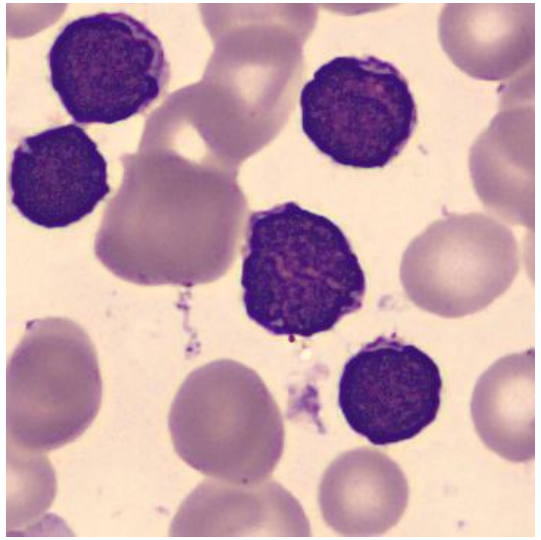
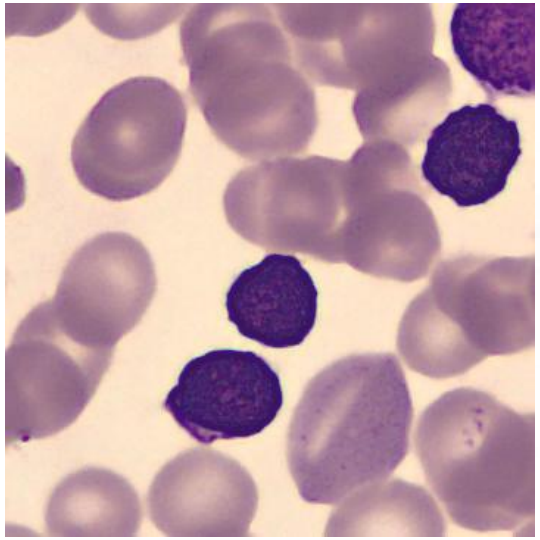
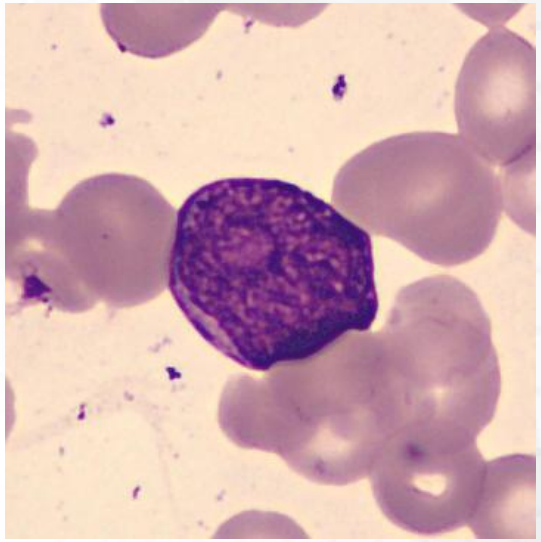
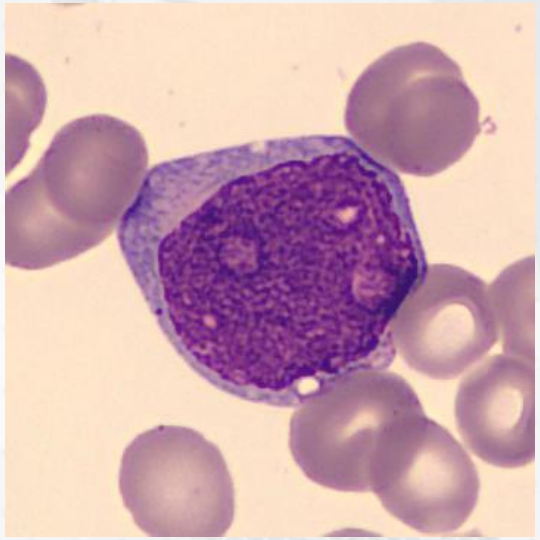
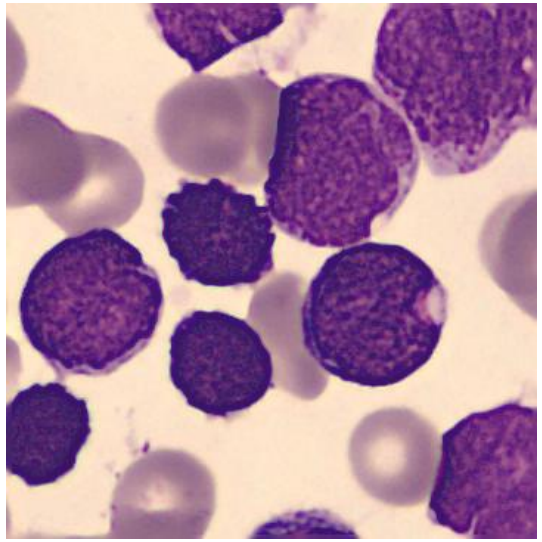
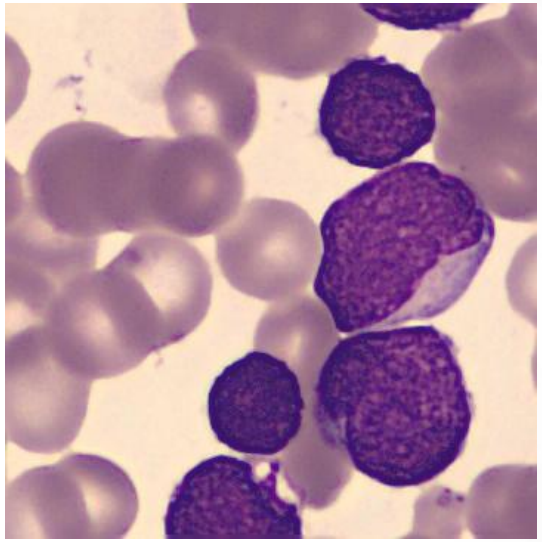
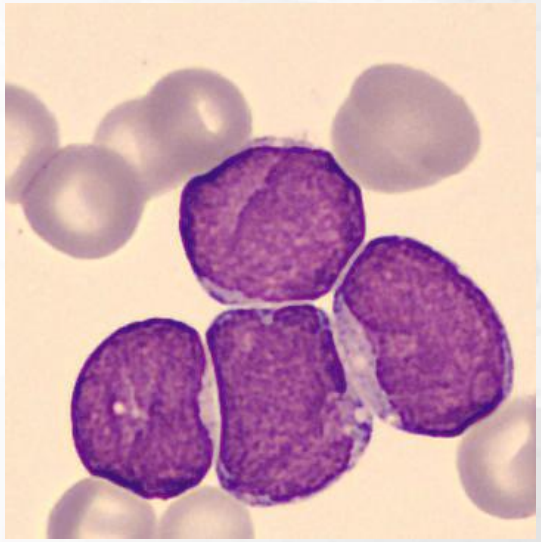
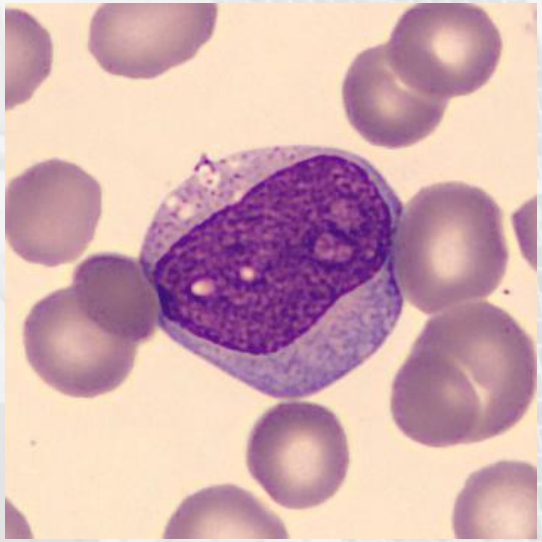
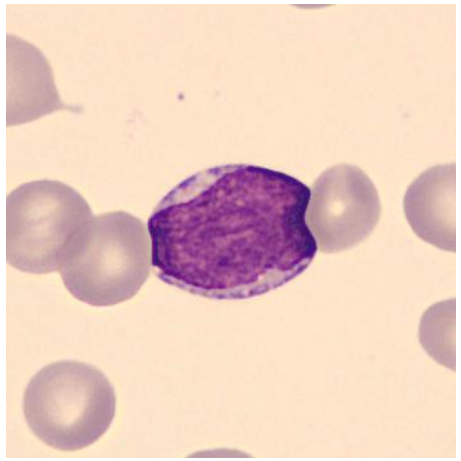
5.- RELACIÓN N/C

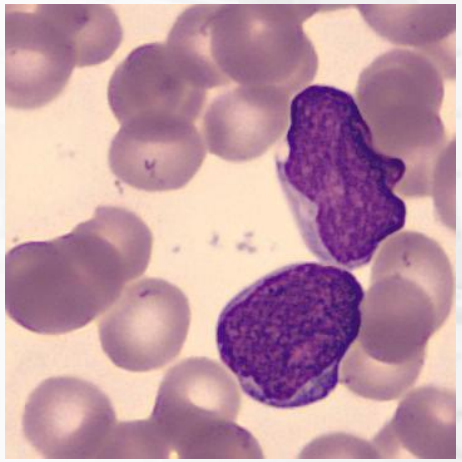









6.- TIPO DE CITOPLASMA

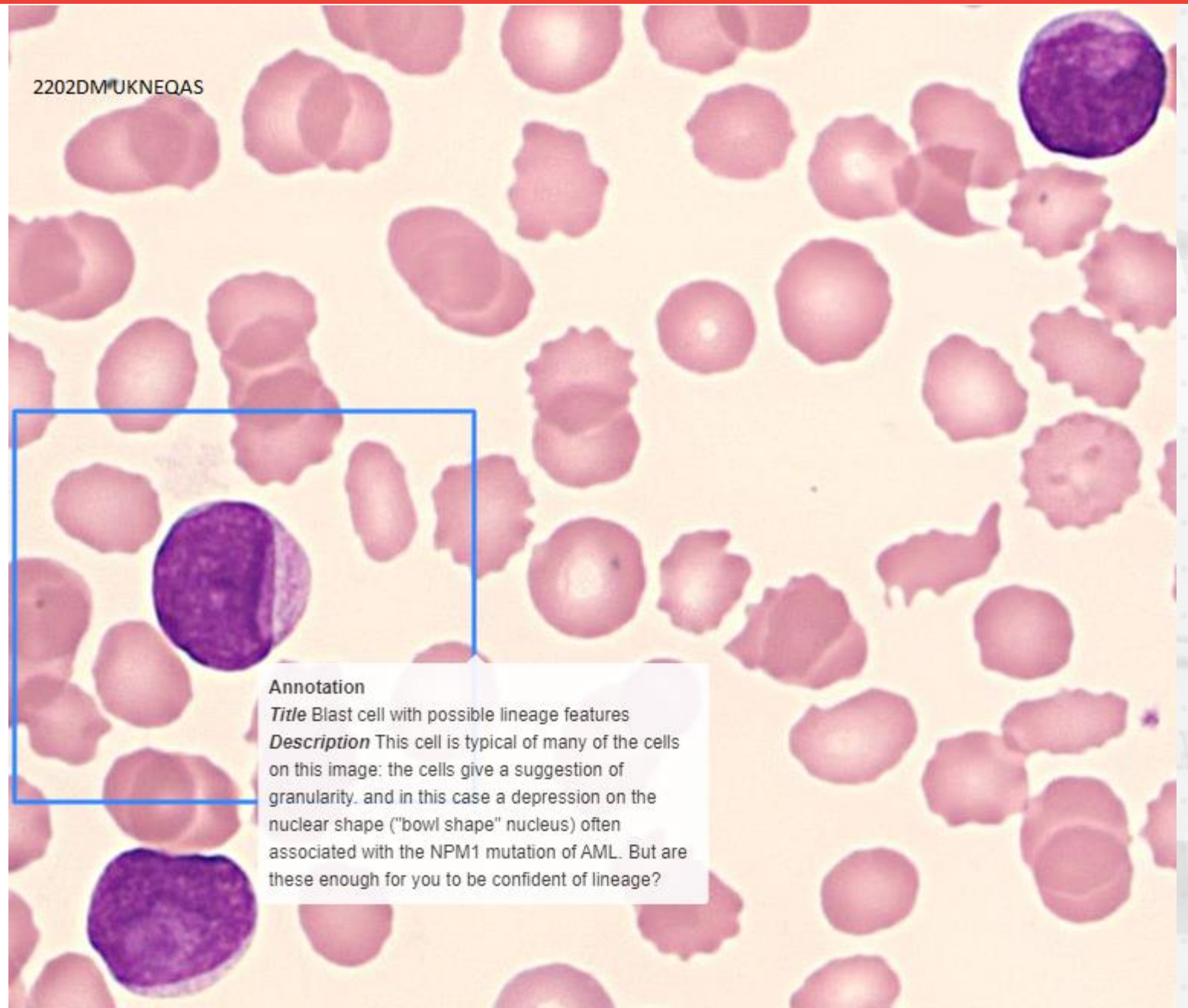
Granular



Agranular

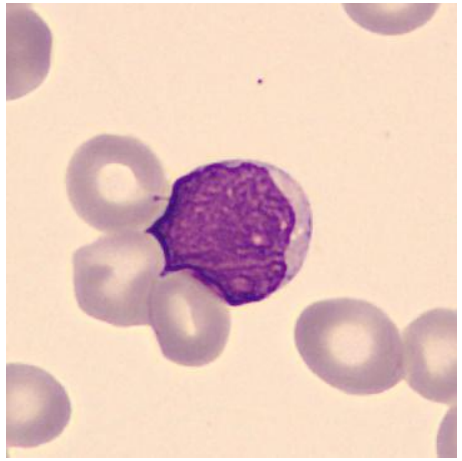


6.- TIPO DE CITOPLASMA

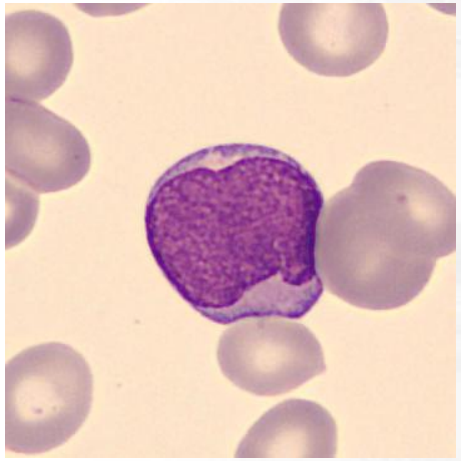

2202DM UKNEQAS
Annotation
Title Blast cell with possible lineage features
Description This cell is typical of many of the cells on this image: the cells give a suggestion of granularity. and in this case a depression on the nuclear shape ("bowl shape" nucleus) often associated with the NPM1 mutation of AML. But are these enough for you to be confident of lineage?

7.- BASOFILIA CITOPLASMÁTICA

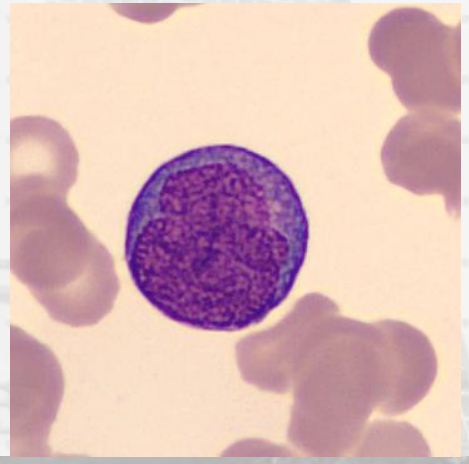
Leve



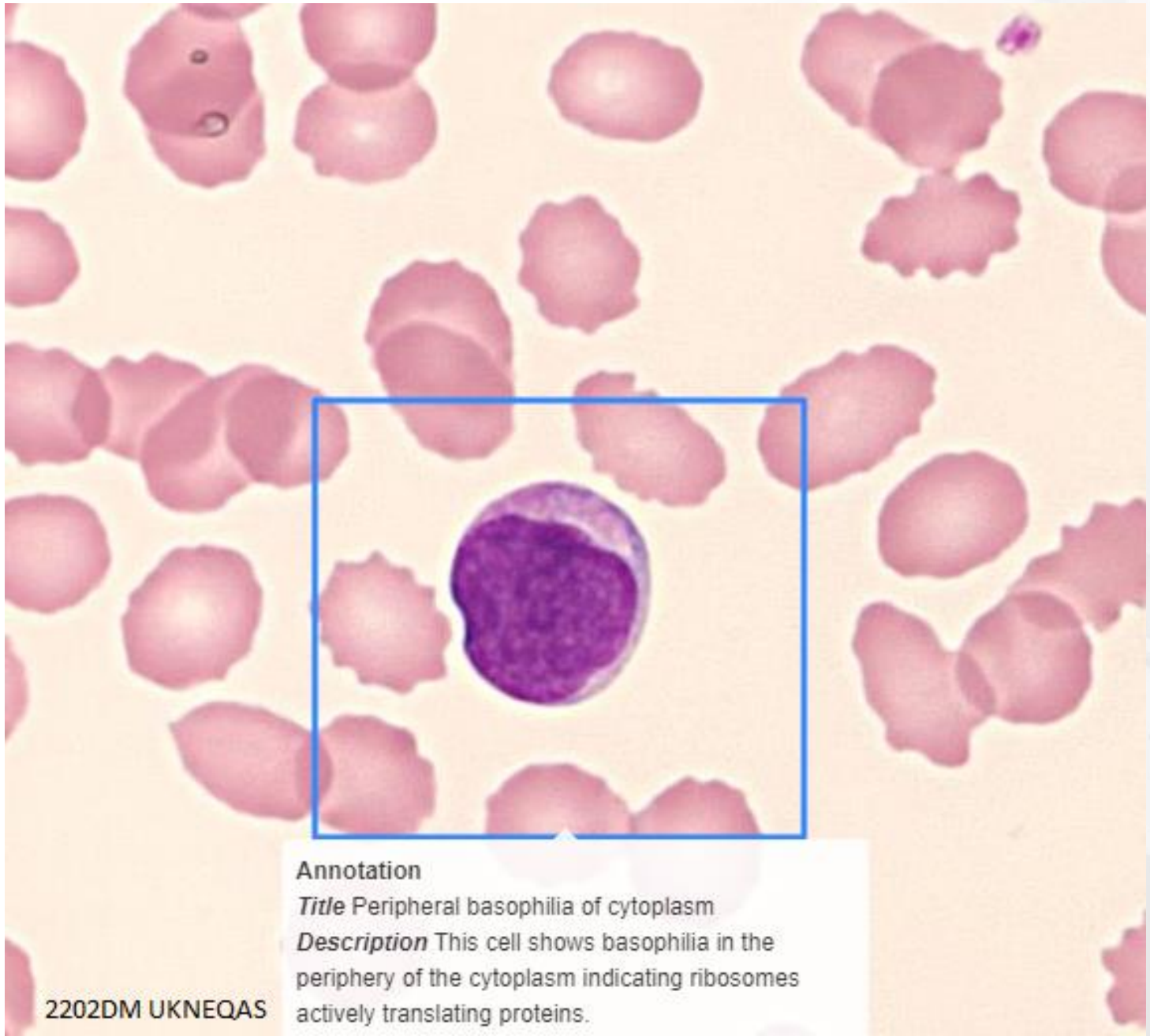
Moderada



Intensa



7.- BASOFILIA CITOPLASMÁTICA


Annotation
Title Peripheral basophilia of cytoplasm
Description This cell shows basophilia in the periphery of the cytoplasm indicating ribosomes actively translating proteins.
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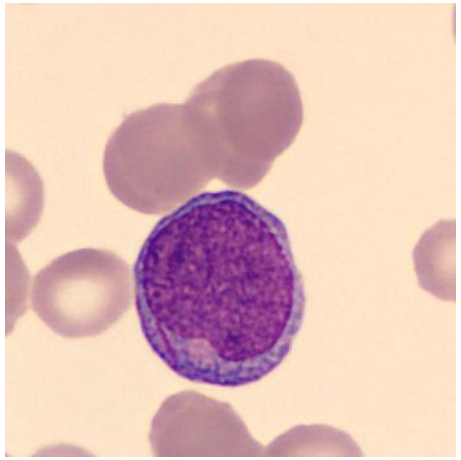
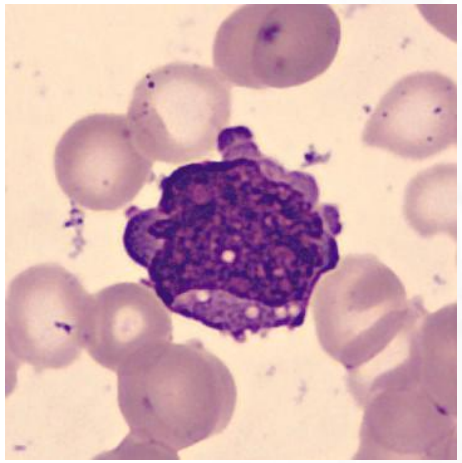
8.- PRESENCIA DE INCLUSIONES

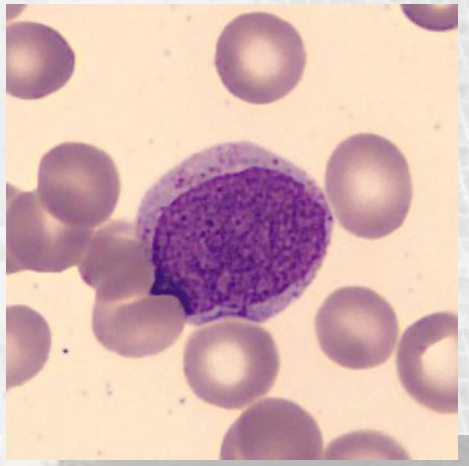
Bastón de Aüer



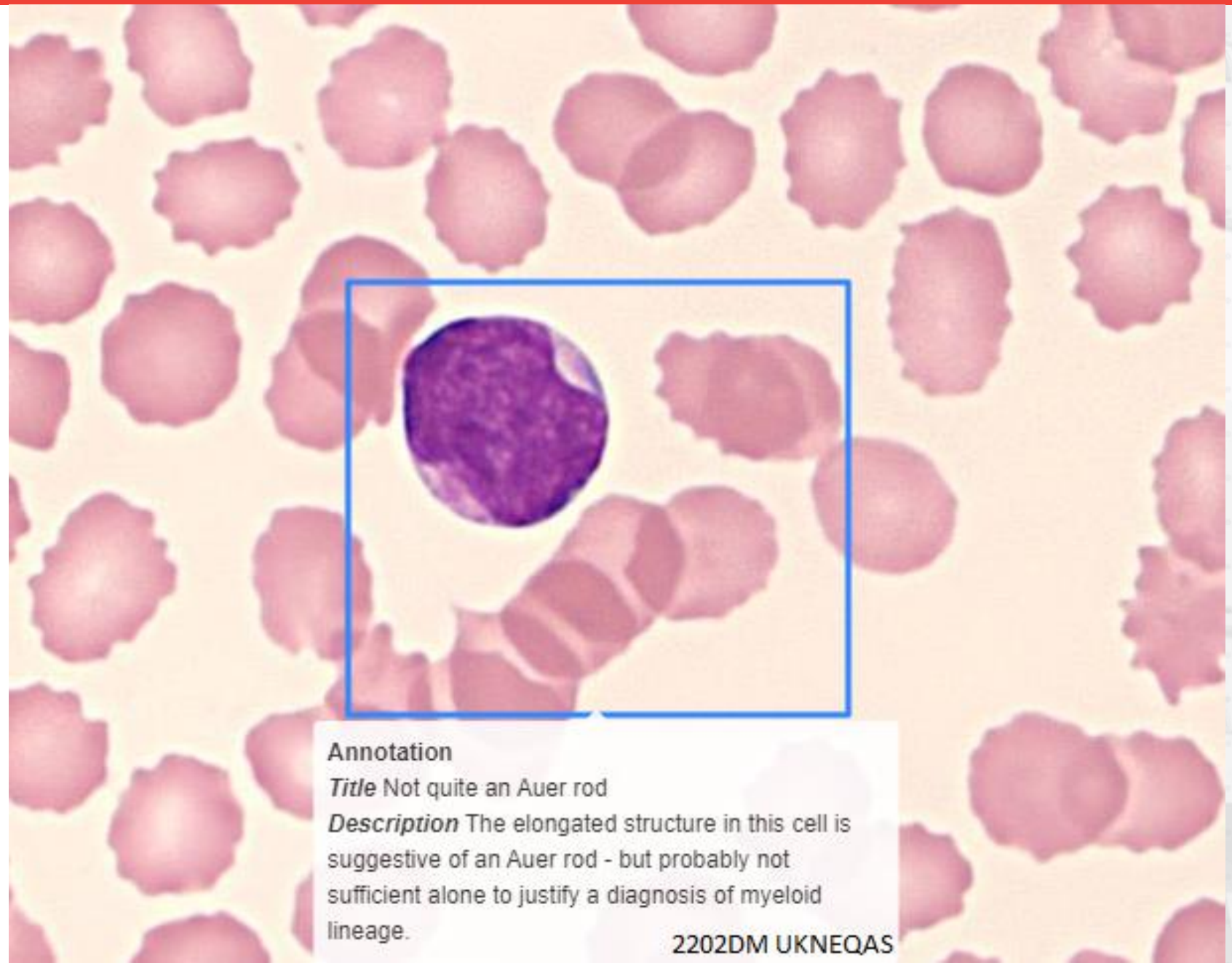
Vacuolas citoplasmáticas



Gránulos de tamaño variable

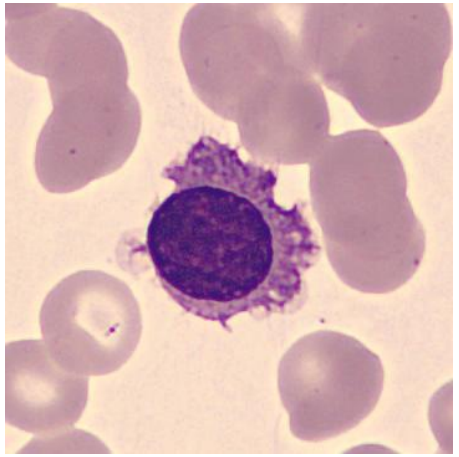


8.- PRESENCIA DE INCLUSIONES

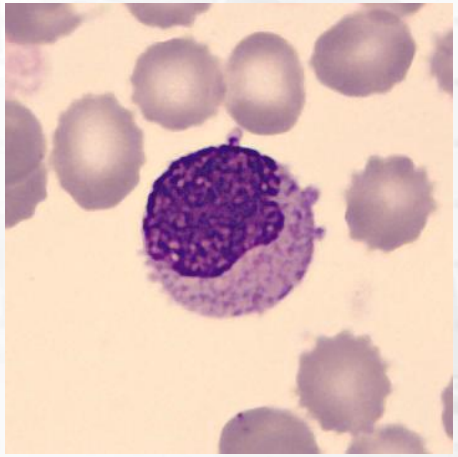

Annotation
Title Not quite an Auer rod
Description The elongated structure in this cell is suggestive of an Auer rod - but probably not sufficient alone to justify a diagnosis of myeloid lineage.
2202DM UKNEQAS

9.- ALTERACIONES DE MEMBRANA

Prolongaciones citoplasmáticas



Orejas citoplasmáticas



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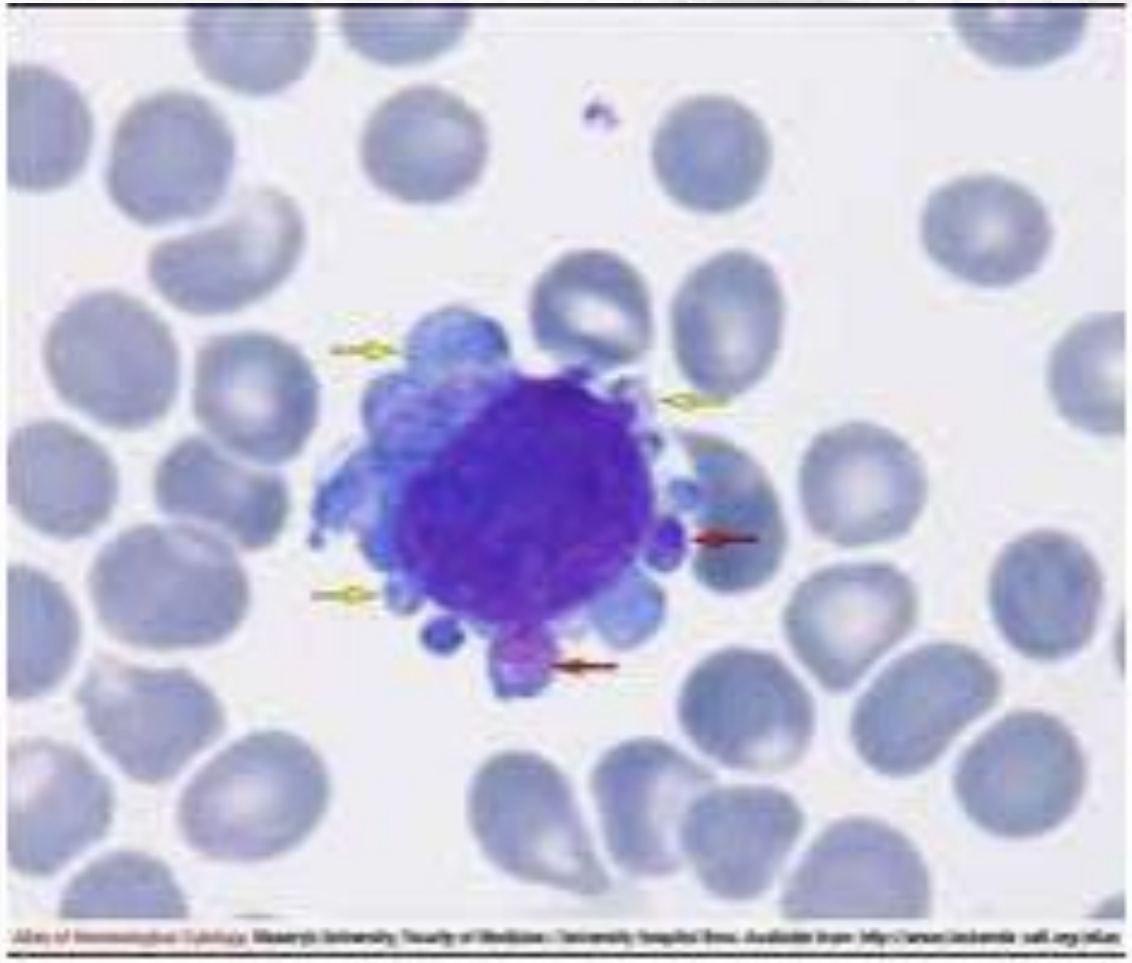
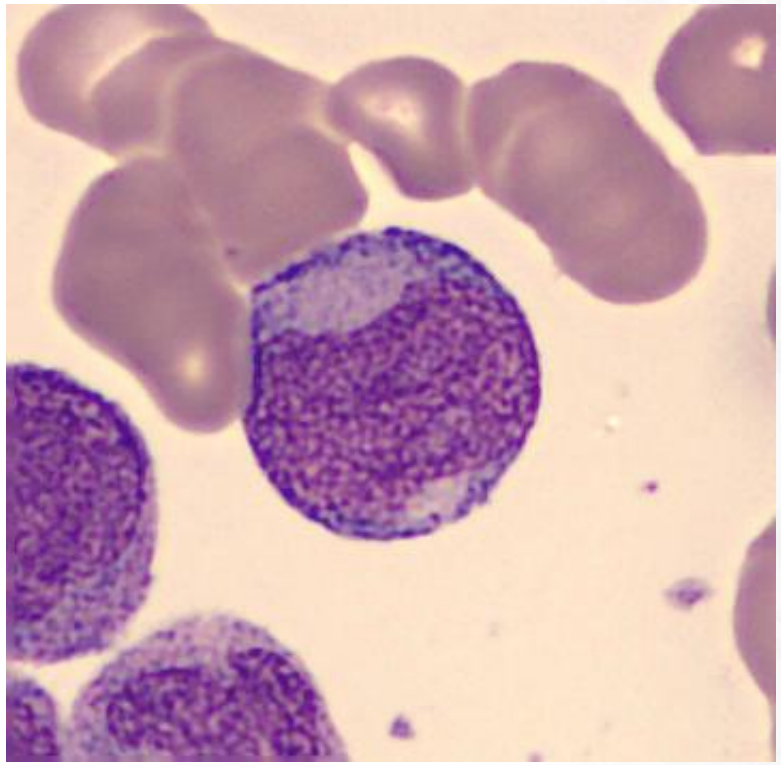
9.- ALTERACIONES DE MEMBRANA

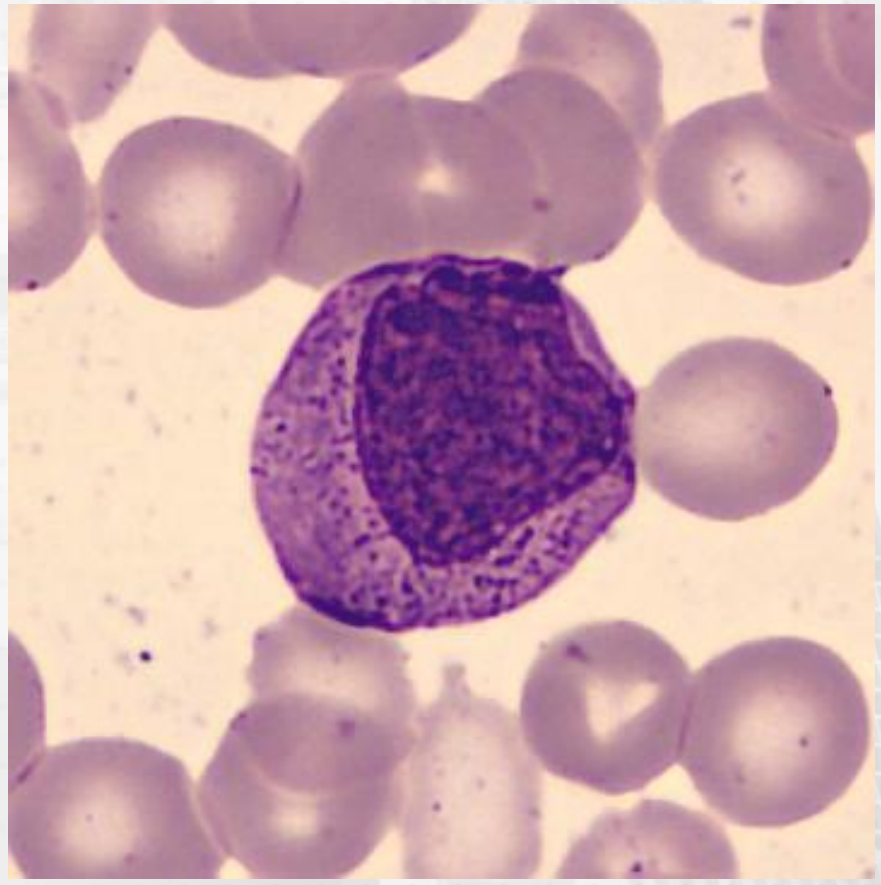
medium-sized to large blasts (12–18 μm) with a round, slightly irregular, or indented nucleus with fine reticular chromatin and 1–3 nucleoli. The cytoplasm is basophilic, often agranular, and may show distinct blebs or pseudopod formation. Micromegakaryocytes are common, but dysplastic features of granulocytic and erythroid cells are not usually present.



BLASTOS

Discusión





TALLER DE MORFOLOGÍA SANGUÍNEA Y ANÁLISIS DE IMÁGENES: CON ÉNFASIS EN BLASTOS

Instituto de Salud Pública
Ministerio de Salud
Gobierno de Chile

GRACIAS